

346,860 COMPLETE SPECIFICATION

[This Drawing is a reproduction of the Original on a reduced scale.]

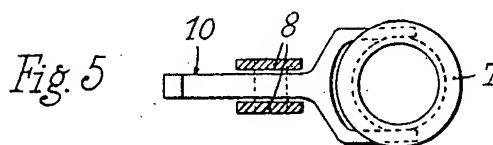
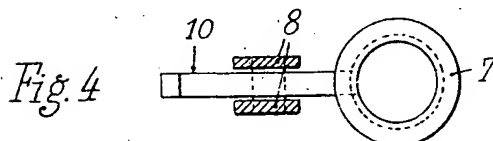
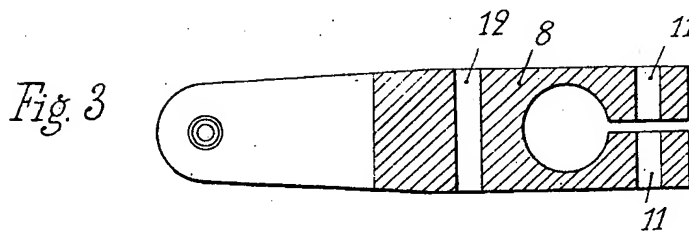
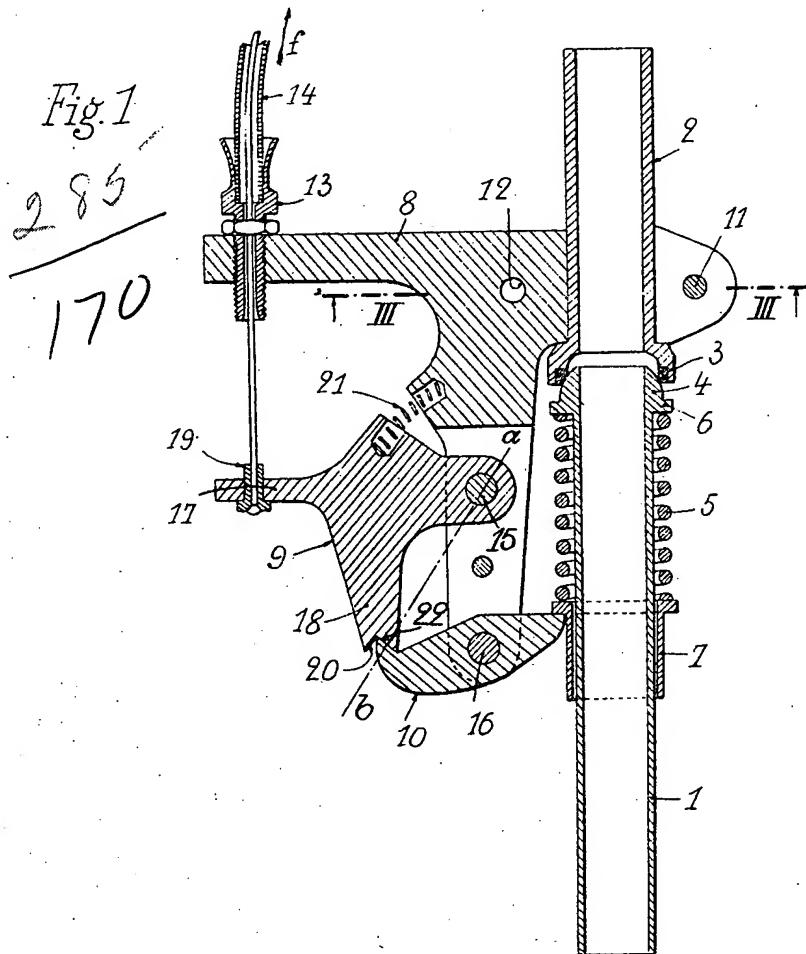


Fig. 2

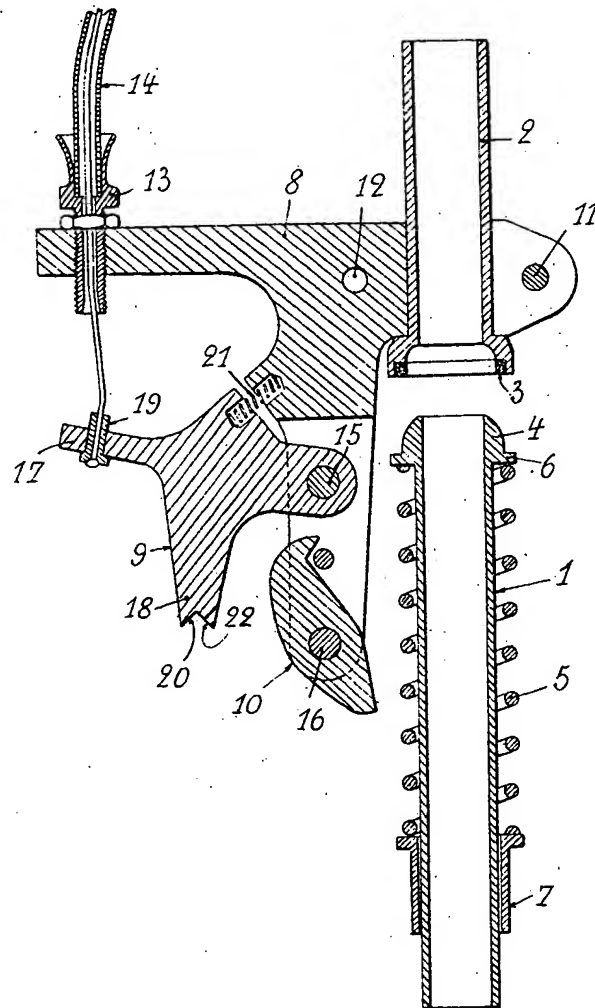
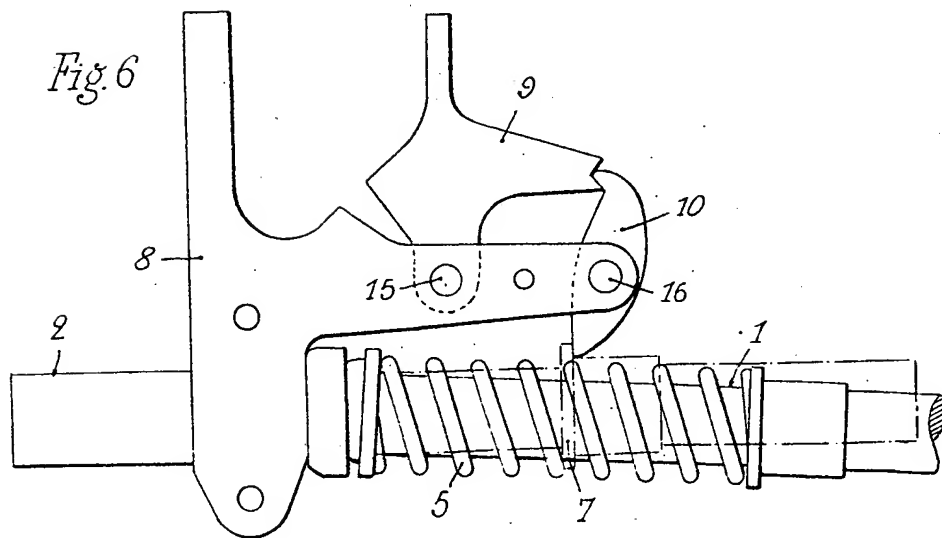


Fig. 6



with respect to the stationary pipe section and one arm of which is under the control of a spring, the other arm abutting against the locking member, and means 5 whereby the thrust of said spring presses the movable pipe section against the stationary one.

4. A pipe coupling as claimed in claim 3, characterized in that said spring is an 10 helical one threaded on the removable pipe section and bearing at one end on a flange rigid with the latter and at the other end on a sleeve adapted to slide along the pipe and to engage said stop 15 member.

5. A pipe coupling as claimed in claims 3 or 4, characterized in that said locking member is pivotally mounted and

resiliently urged towards its locking position.

6. A pipe coupling as claimed in claim 20 5, characterized in that said locking member is provided with a notch adapted for engagement with a pawl-like element provided on the abutting arm of the stop 25 member.

7. A pipe coupling as claimed in any of claims 3 to 6 characterized in that 30 both the stationary pipe section, the stop member and the locking member are carried by a single bracket.

8. A pipe coupling substantially as described and as shown in the accompanying drawings.

Dated this 23rd day of January, 1930.

MARKS & CLERK.

PATENT SPECIFICATION

Convention Date (France): Feb. 14, 1929.

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No. 2360/30.

Complete Accepted: April 23, 1931.

COMPLETE SPECIFICATION.



Improvements in Pipe Couplings.

I, HENRY CHARLES ALEXANDRE POTEZ, 14, rue de Marignan, Paris, France, a citizen of the French Republic, do hereby declare the nature of this invention and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement:—

The present invention relates to a coupling arrangement for pipes, by which two parts of a line of piping can be instantly uncoupled, while affording a leakless joint between such parts when they are connected together.

To this end a pipe coupling has already been devised wherein one of the pipe sections is abutted and resiliently pressed against the other by means of a spring bearing on the one hand on a stop member associated with the stationary pipe section and rigidly connected to the same and on the other hand on a movable stop member associated with the movable pipe section through a coupling and controlling member adapted to be operated at will so as to couple said movable stop member with the movable pipe section while holding the spring in an energised position and to disconnect said stop from the movable section, thereby releasing the spring.

One object of the present invention which is more particularly intended to be used in connection with tanks of aircraft adapted to be thrown away during flight is to provide for an automatic disconnection of the movable pipe section associated with the tank from the pipe section secured to the aircraft upon actuation of the mechanism for dropping overboard the tank. For this purpose, the pipe coupling between a stationary pipe section and a removable one is of the type wherein both sections are resiliently pressed against each other and, according to the invention, the removable pipe section is held in the coupling position by stop means arranged to so engage an element on said removable pipe section that the latter will be automatically uncoupled when it assumes a predetermined inclination with respect to the axis of the stationary pipe section.

[Price 1/-]

Further, said stop means comprises a movable stop member, a locking member being provided to lock said stop member in the coupling position and release the same at will. In this manner, should the uncoupling not be automatically effected for any reason, a positive action may be exercised to release the removable pipe section.

Obviously, such a pipe coupling may be used not only on board aircraft, but also in any case where it may be required to abruptly separate at any time two sections of a line of piping which are normally connected together. Further, the peculiar arrangement comprising the movable stop member and locking mechanism for the same, as defined in the claims, may be used with a stop member not allowing automatic disengagement for the removable section for a given inclination of the same, without this being out of the scope of the present invention.

A preferred embodiment of the invention is illustrated in the accompanying drawings, which are given solely by way of example.

In the drawings:

Fig. 1 is a vertical section of a device according to the invention, in the position for coupling two sections of piping.

Fig. 2 is a corresponding view in which the device is in the position in which the said sections are uncoupled.

Fig. 3 is a section on the line III—III of Fig. 1.

Figs. 4 and 5 are two plan views showing two modified details of construction.

Fig. 6 shows the automatic disengagement of the removable pipe section.

As herein illustrated, 1 and 2 designate two pipe sections to be coupled. By way of example, the section 1 is secured to a tank mounted on an aircraft and adapted to be thrown away when in flight, the section 2 being secured to the aircraft.

In the embodiment illustrated, the pipe section 2 is provided at one end with a packing member 3, preferably of a plastic metal, and the corresponding end 4 of the section 1 has a hemispherical form. The said end 4 is pressed against the packing 3 by an helical spring 5 sur-

rounding the section 1 and bearing at one end upon a fixed shoulder 6 provided on section 1 and at the other end upon a sleeve 7, slidably carried by said section 1. When sections 1 and 2 are coupled, sleeve 7 is held stationary at a suitable point of section 1 to hold spring 5 in an energised state whereby the removable pipe section is resiliently pressed against the fixed pipe section. Therefor and in accordance with the basic idea of the invention, a stop member 10 held stationary to form an abutment for sleeve 7 is carried independently of the removable section by means secured to the aircraft structure and it is shaped to engage sleeve 7 in such a manner that while holding it in the proper coupling position, it is also adapted to wholly free the same when sections 1 and 2 are being disconnected, whereby section 1 may freely fall away. Preferably, the stop 10 merely bears upon sleeve 7 so that it will disengage same when the removable section has taken a position somewhat inclined with respect to the axis of section 2 as shown in Fig. 6. In this case, the engaging end of the stop 10 may be for instance of the shape shown in Fig. 4 or in Fig. 5.

The operation of the device appears clearly in Fig. 6. It will be seen that when the tank is detached from the aircraft and begins to fall overboard, the pipe section 1 takes an inclined position with respect to the axis of the stationary pipe section 2 and sleeve 7 is released from stop member 10, thus allowing spring 5 to expand and the section 1 to fall away from the section 2.

In practice, the pipe section 1 which is connected to the fuel tank will automatically take such an inclined position when the fuel tank has been detached and has somewhat moved crosswise of the axis of section 1.

Herein, and as shown in Figs. 1 and 2, the means which carries the stop member 10 is provided by a bracket 8 secured to a fixed part of the aircraft by a bolt passing through the hole 12 pierced throughout the bracket body. This bracket is also secured to the stationary section 2 by a bolt traversing a hole 11.

The arrangement above described may be preferably improved in the case where the stop member is movable by providing locking means whereby said movable stop member can be locked in its coupling or abutting position and released at will. For this purpose, the stop member of the arrangement shown and described is a rotatable double arm lever supported by a pin 16 carried by the bracket 8 and its arm opposite the arm in contact with

sleeve 7 terminates in a pawl-like projection adapted to engage a notch 20 in one arm 18 of a locking or trigger like member 9 pivotally supported by means of a pin 15 carried by the bracket 8.

The trigger 9 may be positively disengaged from the stop member 10 to release the same by control means comprising a traction cable contained in a sheath 14. One end of the cable is attached to a sleeve 19 carried by an arm 17 of the trigger 9 and the end of the sheath 14 is secured in a hollow screw 13 carried by the bracket 8. A small spring 21 is provided for urging back the trigger 9 to its locking position.

The notch 20 is so shaped that its side 22 in engagement with stop 10 forms a right angle with the line *a-b* (Fig. 1) joining the centre of pivotation of the trigger to the middle point of side 22. Due to such a disposition, the trigger 9 and the stop member 10 form a kind of click and ratchet arrangement.

The operation of the control arrangement appears in Figs. 1 and 2.

By drawing upon the controlling cable 14 in the direction of the arrow *f*, the operator causes the trigger 9 to swing upwardly, thus releasing the rotatable stop member 10 and allowing spring 5 to expand whereby member 10 is moved aside into the position shown in Fig. 2. At this time, the pipe sections 1 and 2 are fully disconnected and the section 1 may fall away or be taken off.

Obviously, the invention is not limited to the forms of construction herewith described and represented, which are given solely by way of example.

Having now particularly described and ascertained the nature of my said invention and in what manner the same is to be performed, I declare that what I claim is:—

1. A pipe coupling between a stationary pipe section and a removable one, wherein both sections are resiliently pressed against each other, characterised in that the removable pipe section is held in the coupling position by stop means arranged to so engage an element on said removable pipe section that the latter will be automatically uncoupled when it assumes a predetermined inclination with respect to the axis of the stationary pipe section.

2. A pipe coupling as claimed in claim 1, in which the stop means comprises a movable stop member which is retained in the locking position by a locking member.

3. A pipe coupling as claimed in claims 1 and 2, wherein the stop member is in the form of a two-armed rocking lever the pivoting axis of which is stationary